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ABSTRACT

A survey of assistive technology use among North Carolina children with disabilities age 5 and under is reported and illustrated with graphs and charts. Responses from 160 agencies provided information on 2,217 children currently receiving or requiring assistive devices and services. Results are summarized in terms of demographic findings, costs of required technology and services, sources of funding, and differences between different ages and disability types. Average costs of assistive technology for African American children were one-third lower than average costs for Caucasian children. Medicaid was found to be the most common source of funding for assistive technology, and the most frequently provided services were evaluation/assessment, child/family training, and device selection. Slightly under half of the devices recommended for use had been provided, with lack of funding and lack of trained providers cited among the most common reasons for failure to provide the necessary equipment. Recommendations for further study, additional funding and training opportunities, and expanded public awareness of available funds are provided. (PB)

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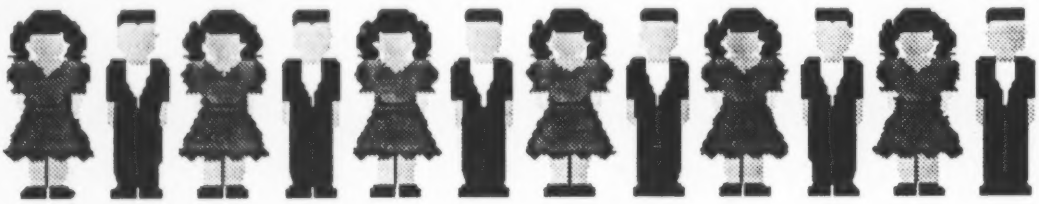
North Carolina Infant, Toddler & Preschooler Assistive Technology Needs Assessment

A Report on the Provision of Assistive Technology Devices and Services to Children with Disabilities from Birth to Age 5 in North Carolina



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Background

In November, 1994, a survey was conducted to assess the provision of, and need for, assistive technology for children from birth to age 5 in North Carolina. Questionnaires were mailed to 539 agencies statewide serving infants, toddlers and preschoolers with disabilities. There were 160 responses (29.7 %) providing detailed information on 2217 children currently receiving or needing assistive technology devices and services.

Respondent Demographics

- Survey responses represented 62 % male (N=1375) and 38 % female children (N=841).
- All ages from birth through age 5 were represented: 15 % birth to 1 year old (N=327); 16 % 1 to 2 years old (N=357); 20 % 2 to 3 years old (N=436); 21 % 3 to 4 years old (N=457); 21 % 4 to 5 years old (N=463); and 7 % over age 5 (N=136).
- Caucasian children represented the largest ethnic group at 50 % (N=1102) followed by African Amercian children at 32 % (N=717). Hispanic children were the only other significant group at 4 % (N=87). The next closest group was Native American children at 0.8 % (N=18). No other group was represented over 0.5 %. The "Unknown" response was 11 % (N=244).
- Respondents were from Early Intervention/Developmental Day Programs (31 %), followed by Public Schools (27 %), Health Departments (17 %), Developmental Evaluation Centers (8 %), Head Start Programs (4 %), Hospitals (3 %) and United Cerebral Palsy Centers (2 %).
- All 100 North Carolina counties had children represented. The most responses were from Wake (N=146), Mecklenburg (N=126), New Hanover (N=96), Pitt (N=89) and Gaston (N=83).
- Children with developmental delay represented the largest number of respondents (N=656), followed by children with cerebral palsy (N=373), those at risk (N=342) and "other" (N=247).

Key Findings

- The total cost of needed assistive technology *devices* for 839 children with disabilities birth to age 5 reporting (41 % of respondents in this age group) is $2.49 million based on the dollar amount of all equipment a child is expected to need *through age 5*, including equipment ordered, equipment needed but not ordered or equipment expected to need.
- The average annual projected cost of needed assistive technology per child is $508 for children under age 1, $732 for children between 1 and 2, $952 for children between 2 and 3, $1788 for children between 3 and 4, and $3000 for children between the ages of 4 and 5.[a]
- The average cost of needed assistive technology per African American child ($2349, N=319) is one-third less than the average cost per Caucasian child ($3570, N=532). This may be due to differences in the prevalency of primary disorders reported for the various ethnic groups among survey respondents. In addition, significantly larger proportions of Caucasian children were reported to need seating and positioning equipment and computers, which can be high-cost items, whereas a larger proportion of African American children were indicated to need "no equipment."[b]
- The assistive technology devices reported as most frequently recommended *and* provided for infants and toddlers are adapted toys, seating and positioning systems, learning aids and computers/computer access aids. The assistive technology devices reported as least frequently provided are aids for daily living and augmentative communication devices.
- The assistive technology devices reported as most needed by children birth through age 2 are learning aids, adapted toys and augmentative communication devices. For children ages 3 through 5, the most needed devices are augmentative communication devices, learning aids and computers/computer access aids.

- The assistive technology devices reported as most needed by children with developmental delay are learning aids, augmentative communication devices and adapted toys. For children with cerebral palsy, the most needed devices are augmentative communication devices, seating and positioning systems and adapted toys.

- For all children reporting, approximately half (47 %) of needed devices have been provided (55 % for children birth through age 2; 42 % for children ages 3 to 5). If an assistive technology device was *not* provided, the reasons most frequently reported are lack of funding (12 %), that the device was ordered but not received (8 %) and that there were no trained providers (8 %). Other reasons included family decision, unclear recommendations, no follow through services and a large "other" response.

- The most frequently provided assistive technology services are evaluation/assessment, child/family training and device selection. The least frequently provided services are device replacement, repair/maintenance, help with funding and customizing equipment.

- Children of this age group receive most assistive technology services in hospital/clinic settings (18 %), Developmental Evaluation Centers (15 %) and developmental day programs (14 %).

- Medicaid was reported as the most frequently used funding source for assistive technology services. The least frequently used are financial loans, civic/charity groups and nonprofits.[c]

- Most assistive technology services for infants and toddlers are provided by physical therapists, speech-language-pathologists, child services coordinators, special educators, physicians and occupational therapists.

Recommendations

- Further study is needed to understand differences in assistive technology needs of various ethnic groups. It is critical to determine if identified trends are related to differences in disability prevalences (and thus different equipment needs) among these groups, or if they reflect differences in professional understanding and service delivery practices for children from various ethnic or cultural backgrounds.

- The North Carolina Legislature currently appropriates approximately $1 million annually to meet the assistive technology needs of children with disabilities birth to age 5. Based on this survey's findings, an additional $1.5 million is needed, with 28 % of total equipment funds earmarked for children birth to age 3 and 72 % of funding needed for 3 and 4 year olds.[d]

- Continue to provide and increase training opportunities for public and private service providers, especially to increase the availability of follow-along services for families receiving equipment.

- Increase awareness of existing State funding for assistive technology devices and services for children birth to age 5.

- Expand funding options for children ages 3 to 5, and especially funding to purchase augmentative communication devices, learning aids and computers/computer access aids.

- Establish a tracking system for children identified in this survey to follow through on unmet needs.

Notes

[a] Average annual projected cost was calculated by taking the total reported dollar amount needed per child from a given age through age 5 and then dividing by the number of years between their current age through age 5. For example, the average total cost of needed assistive technology per child under age 1 was $2540. Over a five year period the average annual projected cost is $2540/5 or $508. This, however, may not take into account increasing assistive technology needs in subsequent years.

[b] For example, a larger proportion of African American children were reported to be "Developmentally Delayed" than were Caucasian children, whereas significantly larger proportions of Caucasian children were reported to have "Cerebral Palsy" or to have "Orthopedic Impairments." These differences in disabilities and types of equipment needed, if any, may account for the reported differences in average cost of needed devices.

[c] The survey question asked for the funding sources for assistive technology without differentiating between devices and services. Medicaid does not pay for most assistive technology devices for children in this age group. Medicaid does pay for many technology-related services, such as physical, occupational and speech therapies. It is likely that respondents interpreted this question to mean funding for assistive technology services, thus accounting for Medicaid's high proportion of responses.

[d] Percentage of needed funding by age group was calculated by dividing the average amount needed for children birth to age 3 and ages 3 to 5 into the total projected amount needed by each age group respectively.

Figure 1. Data were collected on 1375 male children and 841 female children.

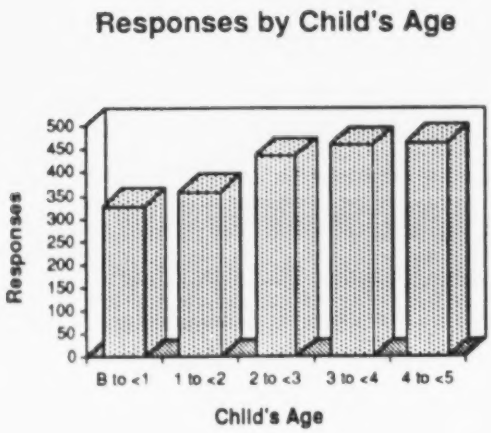


Figure 2. Children of all ages birth to 5 were represented. Not shown are children age 5 and over (N=136, 7%).

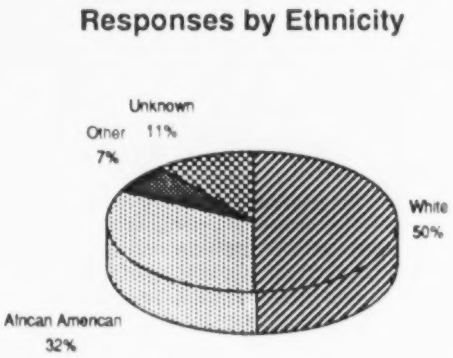
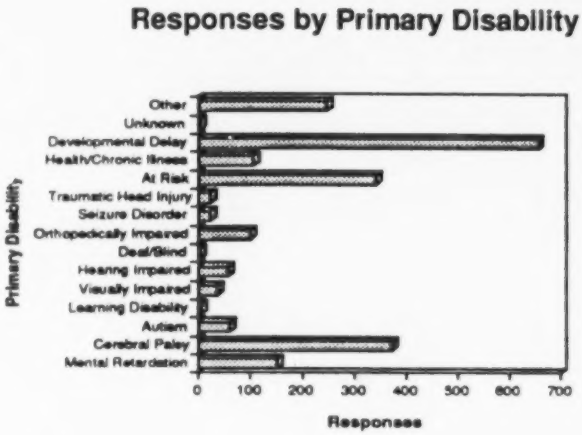


Figure 3. Caucasian children represented 50 % of respondents. The only other groups reporting over 1 % were African American (32 %) and Hispanic (4 %) children.

Figure 4. Children with developmental delay represented the largest number of respondents, followed by children with cerebral palsy and those at risk.



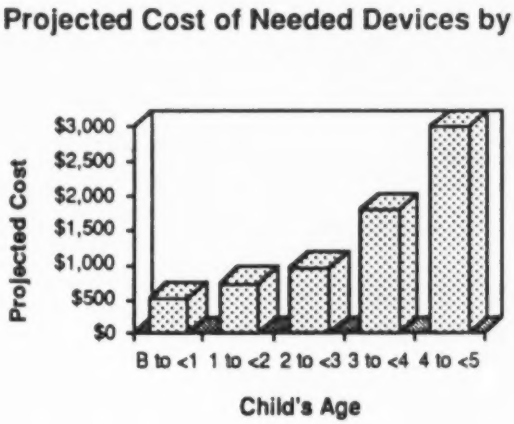
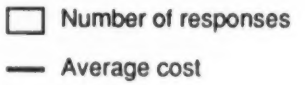
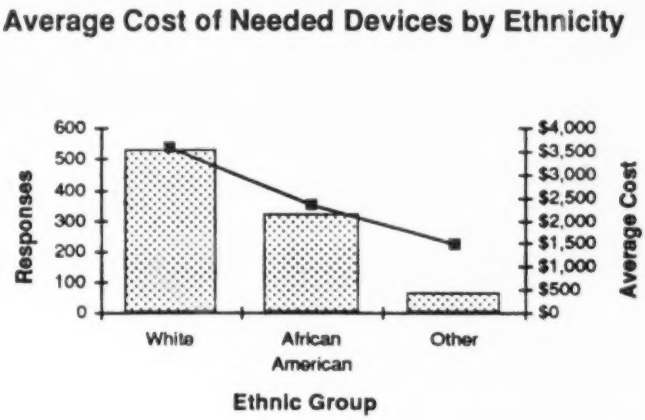


Figure 5. The projected average cost of needed assistive technology devices increases by child's age to a total of $3000 for children between the ages of 4 and 5.

Figure 6. The average cost of needed assistive technology per African American child is two-thirds that of Caucasian children reporting.





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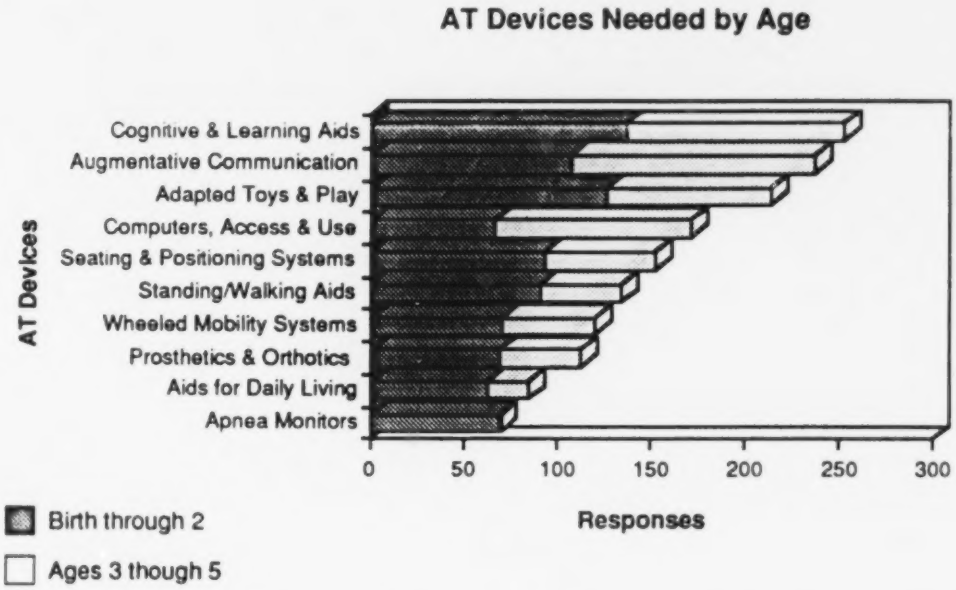

Figure 7. Learning aids, augmentative communication devices and adapted toys are the most frequently needed devices for children birth through age 5 among those reporting a need. For children ages 3 through 5, there is a greater need for computers/computer access aids.

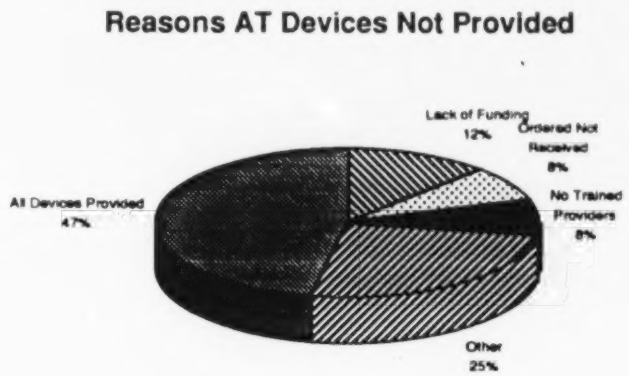

Figure 8. The most frequently reported reasons devices were not provided are lack of funding, the device was ordered but not received and that there were no trained providers.

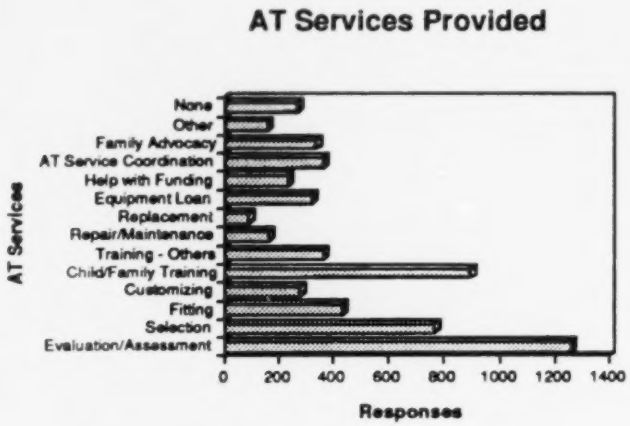

Figure 9. The most frequently provided services are evaluation/assessment, child/family training and device selection. The least frequently provided services are device replacement and repair/maintenance.

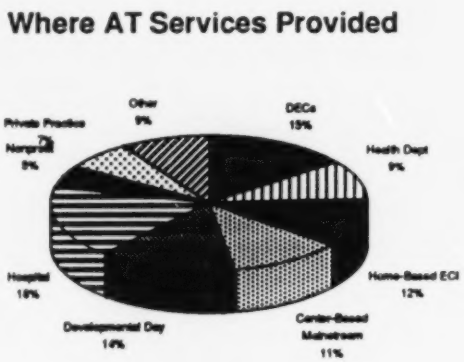

Figure 10. Assistive technology services for infants and toddlers are recieved across settings.

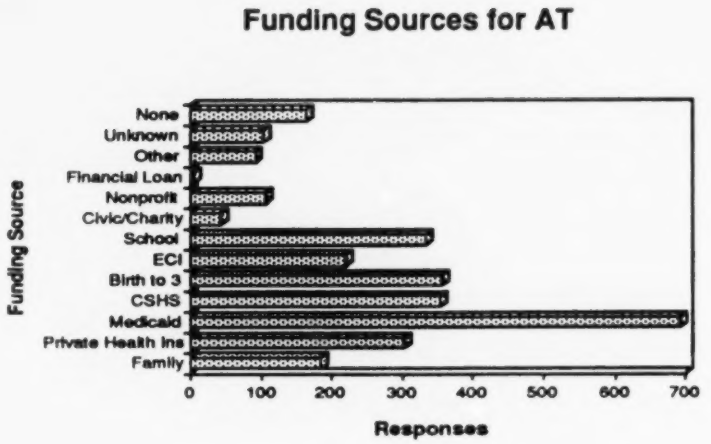

Figure 11. Medicaid was reported as the most frequent funding source for assistive technology. Nonprofits, charities and financial loans are infrequently used.

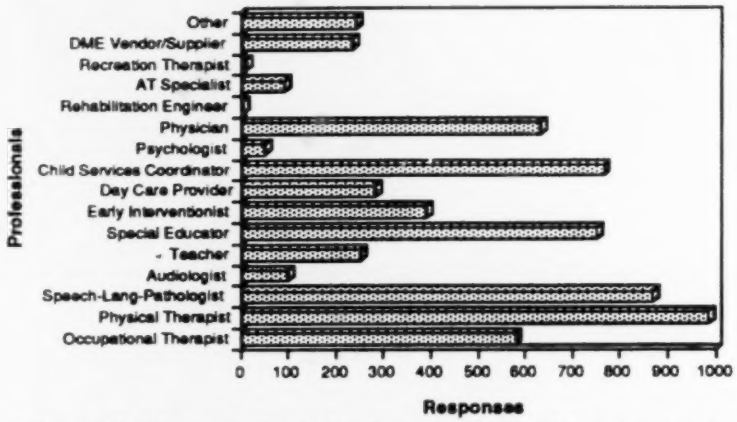

Figure 12. Most assistive technology services for this age group are provided by physical therapists and speech-language pathologists.

Acknowledgements

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